UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,823	06/26/2006	Kenichi Fukumoto	40404.24/sa	1926

54068 7590 02/27/2009

ROHM CO., LTD.
C/O KEATING & BENNETT, LLP
1800 Alexander Bell Drive
SUITE 200
Reston, VA 20191

EXAMINER	
HERNANDEZ, MANUEL J	

ART UNIT	PAPER NUMBER
4154	

NOTIFICATION DATE	DELIVERY MODE
02/27/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

JKEATING@KBIPLAW.COM
uspto@kbiplaw.com

Office Action Summary	Application No.	Applicant(s)	
	10/596,823	FUKUMOTO, KENICHI	
	Examiner	Art Unit	
	MANUEL HERNANDEZ	4154	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 June 2006*.

2a)☐ This action is FINAL. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 June 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/26/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: --DC-AC CONVERTER, WITH FEEDBACK SIGNAL CONTROL CIRCUIT UTILIZING POWER SUPPLY VOLTAGE, CONTROLLER IC THEREFOR, AND ELECTRONIC APPARATUS UTILIZING THE DC-AC CONVERTER--.

Drawings

2. The drawings are objected to because the unlabeled rectangular boxes shown in the drawings should be provided with descriptive text labels. Figure 1 is missing descriptive text labels for items 160, 200, ADP, and FL. All figures contain dotted lines and should instead include solid lines to establish connections between components. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the

remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

In addition to Replacement Sheets containing the corrected drawing figure(s), applicant is required to submit a marked-up copy of each Replacement Sheet including annotations indicating the changes made to the previous version. The marked-up copy must be clearly labeled as "Annotated Sheets" and must be presented in the amendment or remarks section that explains the change(s) to the drawings. See 37 CFR 1.121(d)(1). Failure to timely submit the proposed drawing and marked-up copy will result in the abandonment of the application.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 2 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites the limitation "said triangular wave signal generation circuit" in line 3. There is insufficient antecedent basis for this limitation in the claims.

Claim 8 recites the limitation “said triangular wave signal” and "said triangular wave signal generation circuit" in line 3. There is insufficient antecedent basis for these limitations in the claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Lin (US 6,259,615).

Lin ‘615 discloses a DC-AC converter (Figure 2), comprising a transformer having a primary winding and at least one secondary winding (TX1), a semiconductor switching circuit for allowing electric current to flow from a DC power supply (12) through said primary winding in a first or a second direction (80), a current detection circuit (Rs, 42) for detecting the current flowing through a load (20) connected to the secondary winding to output a current detection signal (contained in 42); a voltage detection circuit (C2, C3, 66, 62) for detecting the voltage applied to said load (20) to output a voltage detection signal(contained in 62); a current-error signal generating circuit (42) for generating a current-error signal based on said current detection signal and a current reference signal (column 8, lines 5-15); a voltage-error signal generating circuit (60, 62) for generating a voltage-error signal based on said voltage detection

signal and a voltage reference signal (column 8, lines 39-41, 49-55); a feedback signal formation circuit (60, 40) for forming a feedback signal (output of 62) in accordance with the magnitudes of said current-error signal and voltage error signal (column 5, lines 39-42, column 8, lines 28-31); and a switch drive circuit for forming a drive signal for switching on and off said semiconductor switching circuit in accordance with said feedback signal(50).

Regarding claim 2, Lin '615 discloses said switch drive circuit includes a PWM signal generation circuit for generating a PWM signal (22, 40, column 10, lines 44-45, column 5, lines 62-66), upon receipt of a triangular wave signal (26) from said triangular wave signal generation circuit (22, A_Drive) and said feedback signal (FB), by comparing said triangular wave signal and feedback signal.

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

8. Claims 1-3 and 7-9 are rejected under 35 U.S.C. 102(a) as being anticipated by Fukumoto et al (JP Pub. No. 2004-166445, see equivalent US Pub. No 2005/0219863).

Fukumoto et al disclose a DC-AC converter (Figure 1), comprising: a transformer (TR) having a primary winding (105) and at least one secondary winding (106); a semiconductor switching circuit for allowing electric current to flow from a DC power supply through said primary winding in a first or a second direction(101, 102, 103, 104); a current detection circuit (114, 115) for detecting the current flowing through said load

(FL) connected to the secondary winding (106) to output a current detection signal (Is); a voltage detection circuit (111, 112) for detecting the voltage applied to said load(FL) to output a voltage detection signal(Vs); a current-error signal generating circuit (Figure 2, 211, Vref2) for generating a current-error signal (output of 211) based on said current detection signal(Is) and a current reference signal (Vref2); a voltage-error signal generating circuit (Figure 2, 212, Vref3) for generating a voltage-error signal (output of 212) based on said voltage detection signal (Vs) and a voltage reference signal(Vref3); a feedback signal formation circuit (Figure 3, 235, 238) for forming a feedback signal (FB) in accordance with the magnitudes of said current-error signal (output of 211) and voltage error signal (output of 212); and a switch drive circuit (203, 204) for forming a drive signal (P1, P2, N1, N2) for switching on and off said semiconductor switching circuit (101, 102, 103, 104) in accordance with said feedback signal (FB).

Regarding claim 2, Fukumoto et al also disclose said switch drive circuit including a PWM signal generation circuit (Figure 2, 214) for generating a PWM signal, upon receipt of a triangular wave signal from said triangular wave signal generation circuit (201, ¶ 018) and said feedback signal (FB), by comparing said triangular wave signal and feedback signal (¶ 024).

Regarding claim 3, Fukumoto et al also disclose said feedback signal formation circuit includes: a current-error control transistor (Figure 2, 235) having a control input (base of transistor) for receiving said current-error detection signal (output of 211); and a voltage-error control transistor (238) having a control input (base of transistor) for receiving said voltage-error detection signal (output of 212), wherein said voltage-error

control transistor is connected in parallel with said current-error control transistor (between FB and ground) so as to output said feedback signal (FB) from the node where said voltage-error control transistor is connected in parallel with said current-error control transistor.

Regarding claim 7, Fukumoto et al disclose a controller IC (Figure 1, 200), adapted to drive a semiconductor switching circuit (101, 102, 103, 104) for flowing current from a DC power supply (BAT) through a primary winding (105) of a transformer (TR) in a first or a second direction to supply AC power to a load (FL) connected to a secondary winding (106) of said transformer, said controller IC comprising: a feedback signal formation circuit (Figure 3, 235, 238) for forming a feedback signal (FB) in accordance with the magnitudes of a current-error signal (output of 211) and a voltage-error signal (output of 212), said current-error signal generated based on both a current detection signal (Is) associated with the current flowing through said load (Figure 1, FL) and a current reference signal (Figure 3, Vref2), and said voltage-error signal generated based on both a voltage detection signal (Vs) associated with the voltage applied to said load (Figure 1, FL) and a voltage reference signal (Figure 3, Vref3); and a switch drive circuit (203, 204) adapted to form a drive signal (P1, P2, N1, N2) for switching on and off said semiconductor switching circuit (101, 102, 103, 104) in accordance with said feedback signal.

Regarding claim 8, Fukumoto et al also disclose said switch drive circuit includes a PWM signal generation circuit (Figure 3, 214) for generating a PWM signal, upon receipt of said triangular wave signal (CT) from said triangular wave signal generation

circuit (201, ¶ 018) and said feedback signal (FB), by comparing said triangular wave signal and feedback signal (¶ 024).

Regarding claim 9, Fukumoto et al also disclose said feedback signal formation circuit includes: a current-error control transistor (Figure 3, 235) having a control input (base of transistor) for receiving said current-error detection signal (output of 211); and a voltage-error control transistor (238) having a control input (base of transistor) for receiving said voltage-error detection signal (output of 212), wherein said voltage-error control transistor is connected in parallel with said current-error control transistor (between FB and ground) so as to output said feedback signal from the node where said voltage-error control transistor is connected in parallel with said current-error control transistor.

9. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 4-6 rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (US 6,259,615) in view of Nagahara (US 5,959,857).

Regarding claim 4, Lin '615 teaches a DC-AC converter as explained above, but fails to disclose a feedback signal control circuit.

Nagahara teaches a feedback signal control circuit (Figure 3, 20, 24, 31) adapted to change (column 4, lines 6—67, column 5, lines 1-2, lines 47-51, column 8, lines 37-47) said feedback signal (input to 16 via 15) so as to reduce the electric power (column 6, 29-36) supplied to said load (9) when the DC power supply voltage of said DC power supply (output of 2) sharply rises.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the DC-AC converter of Lin '615 by utilizing the feedback signal control circuit disclosed in Nagahara connected to the feedback signal in order to stabilize the output power relative to the input voltage.

Regarding claim 5, Lin '615 as modified by Nagahara also teaches said feedback signal control circuit includes: a sharp-voltage-change detection circuit (Nagahara: 20, 24, 30) receiving said DC power supply voltage (output of 2) and adapted to generate a sharp-voltage-change signal (output of 20, 24, 30) by differentiating said DC power supply voltage (column 4, lines 21-24, 35-37); and a reduction circuit (15, 31) connected between a node having the potential of said feedback signal (input to 16 via 15) and a node having a predetermined potential (ground at emitter of 31), and controlled by said sharp-voltage-change signal.

Regarding claim 6, Lin '615 as modified by Nagahara also discloses the DC-AC converter, wherein: said reduction circuit includes a series circuit of a transistor switch

(Nagahara: 31) and a resistor (15); and said sharp-voltage-change detection circuit includes a series circuit of a capacitor(30) and a resistor(34).

12. Claims 7 and 8 rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (US 6,259,615) in view of Lin et al (US Pub. No. 2003/0206426).

Regarding claim 7, Lin '615 discloses means to drive a semiconductor switching circuit (80) for flowing current from a DC power supply (12) through a primary winding of a transformer (TX1) in a first or a second direction to supply AC power to a load (20) connected to a secondary winding of said transformer, said means comprising: a feedback signal formation circuit for forming a feedback signal in accordance with the magnitudes of a current-error signal and a voltage-error signal (column 5, lines 39-42, column 8, lines 28-31), said current- error signal generated based on both a current detection signal associated with the current flowing through said load and a current reference signal (column 8, lines 5-15), and said voltage-error signal generated based on both a voltage detection signal associated with the voltage applied to said load and a voltage reference signal (column 8, lines 39-41, 49-55); and a switch drive circuit adapted to form a drive signal for switching on and off said semiconductor switching circuit in accordance with said feedback signal (50).

Lin '615 does not explicitly teach a controller IC adapted to drive the semiconductor switching circuit. Lin et al '426 teaches a controller IC adapted to drive a semiconductor switching circuit (¶ 0002, 0005, 0006).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to have constructed the DC-AC converter of Lin '615 on an integrated

circuit because integrated circuits have been proven as a reliable and accurate method for implementing a DC-AC converter. Further, an IC provides a reliable method of providing inputs and outputs to the DC-AC converter through input/output pins (Lin '426, ¶ 0006).

Regarding claim 8, Lin '615 as modified by Lin et al '426 teaches said switch drive circuit includes a PWM signal generation circuit for generating a PWM signal (22, 40, column 10, lines 44-45, column 5, lines 62-66), upon receipt of said triangular wave signal (26) from said triangular wave signal generation circuit (22, A_Drive) and said feedback signal (FB), by comparing said triangular wave signal and feedback signal.

13. Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (US 6,259,615) in view of Lin et al (US Pub. No. 2003/0206426) and in further view of Nagahara (US 5,959,857).

Regarding claim 10, Lin '615 and Lin et al '426 teach a controller IC as explained above but fails to disclose a feedback signal control circuit

Nagahara teaches said feedback signal (Figure 3, input to 16 via 15) is changed (column 4, lines 6—67, column 5, lines 1-2, lines 47-51, column 8, lines 37-47) so as to reduce the electric power (column 6, 29-36) supplied to said load (9) when the DC power supply voltage of said DC power supply (output of 2) sharply rises.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the controller IC of Lin and Lin et al by utilizing the feedback signal control circuit disclosed in Nagahara connected to the feedback signal in order to stabilize the output power relative to the input voltage.

Regarding claim 11, Lin '615 and Lin et al '426 as modified by Nagahara teaches a feedback signal control circuit (Nagahara: Figure 3, 20, 24, 31) adapted to change (column 4, lines 6—67, column 5, lines 1-2, lines 47-51, column 8, lines 37-47) said feedback signal (input to 16 via 15) so as to reduce the electric power (column 6, 29-36) supplied to said load (9) when the DC power supply voltage of said DC power supply (output of 2) sharply rises.

Regarding claim 12, Lin '615 and Lin et al '426 as modified by Nagahara teaches said feedback signal control circuit includes: a sharp-voltage-change detection circuit (Nagahara: 20, 24, 30) receiving said DC power supply voltage (output of 2) and adapted to generate a sharp-voltage-change signal (output of 20, 24, 30) by differentiating said DC power supply voltage (column 4, lines 21-24, 35-37); and a reduction circuit (15, 31) connected between a node having the potential of said feedback signal (input to 16 via 15) and a node having a predetermined potential (ground at emitter of 31), and controlled by said sharp-voltage-change signal.

Regarding claim 13, Lin '615 and Lin et al '426 as modified by Nagahara teaches said reduction circuit includes a series circuit of a transistor switch (31) and a resistor (15); and said sharp-voltage-change detection circuit includes a series circuit of a capacitor (30) and a resistor (34).

14. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin '615 in view of Gradzki et al. (US 6,011,360).

Regarding claim 14, Lin '615 discloses a DC-AC converter in accordance with claim 1 for generating AC power from a DC voltage, as described above; and a light

emitting apparatus (Figure 2, 20) driven by said AC power supplied from said DC-AC converter.

Lin '615 does not teach of the DC voltage being a battery. It is common knowledge in the art that a DC voltage could be supplied from a battery, as shown in Gradzki (column 3, lines 53-56). Thus, it would have been obvious to one of ordinary skill in the art to apply a battery as the DC voltage source in the DC-AC converter of Lin '615 to provide a portable power source.

Regarding claim 15, Lin '615 as modified by Gradzki also teaches said light emitting apparatus is a CCFL (20).

Double Patenting

15. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422

F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

16. Claims 1-3 rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3 of U.S. Patent No. 7,236,375. Although the conflicting claims are not identical, they are not patentably distinct from each other because Patent '375 claims the same invention using different terminology.

Regarding claim 1, Patent '375 discloses a DC-AD converter(claim 1, line 4), comprising: a transformer having a primary winding and at least one secondary winding (claim 1, column 11, lines 6-7); a semiconductor switching circuit for allowing electric current to flow from a DC power supply through said primary winding in a first or a second direction (claim 1, column 11, lines 8-10); a current detection circuit for detecting the current flowing through said load connected to the secondary winding to output a current detection signal(claim 1, column 11, lines 12-14); a voltage detection circuit for detecting the voltage applied to said load to output a voltage detection signal (claim 1,

column 11, lines 15-17); a current-error signal generating circuit for generating a current-error signal based on said current detection signal and a current reference signal (claim 2, column 11, lines 45-47); a voltage-error signal generating circuit for generating a voltage-error signal based on said voltage detection signal and a voltage reference signal (claim 2, column 11, lines 48-50); a feedback signal formation circuit (claim 2, "error signal generation circuit") for forming a feedback signal (claim 2, "error signal") in accordance with the magnitudes of said current-error signal and voltage error signal (claim 2, column 11, lines 40-44); and a switch drive circuit for forming a drive signal for switching on and off said semiconductor switching circuit in accordance with said feedback signal (claim 1, column 11, lines 8-10, 36-37).

Regarding claim 2, Patent '375 discloses said switch drive circuit includes a PWM signal generation circuit for generating a PWM signal (claim 1, column 11, lines 22-23), upon receipt of a triangular wave signal from said triangular wave signal generation circuit and said feedback signal (claim 1, column 11, lines 18-19, 25), by comparing said triangular wave signal and feedback signal (claim 1, column 11, lines 33-35).

Regarding claim 3, Patent '375 discloses said feedback signal formation circuit includes: a current-error control transistor (claim 3, column 11, lines 66-67, "first control element") having a control input for receiving said current-error detection signal (claim 3, column 11, lines 60-62, "first error output"); and a voltage-error control transistor (claim 3, column 12, lines 1-2, "second control element") having a control input for receiving said voltage-error detection signal (claim 2, column 11, lines 63-65, "second error

output") wherein said voltage-error control transistor is connected in parallel (claim 3, column 12, lines 3-4) with said current-error control transistor so as to output said feedback signal (claim 3, column 12, lines 4-5, "error signals") from the node where said voltage-error control transistor is connected in parallel with said current-error control transistor (claim 3, column 12, line 5, "node of said output ends").

17. Claim 7-9 rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 6-8 of U.S. Patent No. 7,236,375. Although the conflicting claims are not identical, they are not patentably distinct from each other because Patent '375 claims the same invention using different terminology.

Regarding claim 7, Patent '375 discloses a controller IC, adapted to drive a semiconductor switching circuit for flowing current from a DC power supply through a primary winding of a transformer in a first or a second direction to supply AC power to a load connected to a secondary winding of said transformer (claim 6, column 12, lines 16-18), said controller IC comprising: a feedback signal formation circuit (claim 7, column 12, line 45, "error signal generation circuit") for forming a feedback signal (claim 7, column 12, line 49, "said error signal") in accordance with the magnitudes of a current-error signal and a voltage-error signal (claim 7, column 12, lines 47-48), said current-error signal generated based on both a current detection signal associated with the current flowing through said load and a current reference signal (claim 7, column 12, lines 50-52), and said voltage-error signal generated based on both a voltage detection signal associated with the voltage applied to said load and a voltage reference signal (claim 7, column 12, lines 53-55); and a switch drive circuit adapted to form a drive

signal for switching on and off said semiconductor switching circuit in accordance with said feedback signal (claim 6, column 12, lines 41-42).

Regarding claim 8, Patent '375 discloses said switch drive circuit includes a PWM signal generation circuit for generating a PWM signal (claim 6, column 12, lines 25-26), upon receipt of said triangular wave signal from said triangular wave signal generation circuit and said feedback signal (claim 6, column 12, lines 19-21, 28), by comparing said triangular wave signal and feedback signal (claim 6, column 12, lines 38-40).

Regarding claim 9, Patent '375 discloses said feedback signal formation circuit includes: a current-error control transistor (claim 8, column 13, line 4, "first control element") having a control input for receiving said current-error detection signal (claim 8, column 13, line 4, "first error output"); and a voltage-error control transistor (claim 8, column 13, line 16, "second control element") having a control input for receiving said voltage-error detection signal (claim 8, column 13, lines 6-7, "second error output"), wherein said voltage-error control transistor is connected in parallel (claim 8, column 13, lines 8-9) with said current-error control transistor so as to output said feedback signal (claim 8, column 13, lines 9-10, "said error signal") from the node where said voltage-error control transistor is connected in parallel with said current-error control transistor (claim 8, column 13, line 10, "node of said output ends").

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tolle et al(US 6,625,042), Toshio et al(US 6,580,627), and

Jang(US 6,381,151) are cited to show integrated circuit controllers were well known in the art at the time of the invention. Liu (US 5,619,402) is cited to show a converter utilizing a battery as a DC source.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MANUEL HERNANDEZ whose telephone number is (571)270-7916. The examiner can normally be reached on 5/4/9 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seungsook Ham can be reached on 571-272-2405. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Seungsook Ham/
Supervisory Patent Examiner,
Art Unit 4154

MH